North Cape Oil Spill Restoration

National Oceanic and Atmospheric Administration
United States Fish and Wildlife Service
Rhode Island Department of Environmental Management

Shellfish Restoration Program

Background

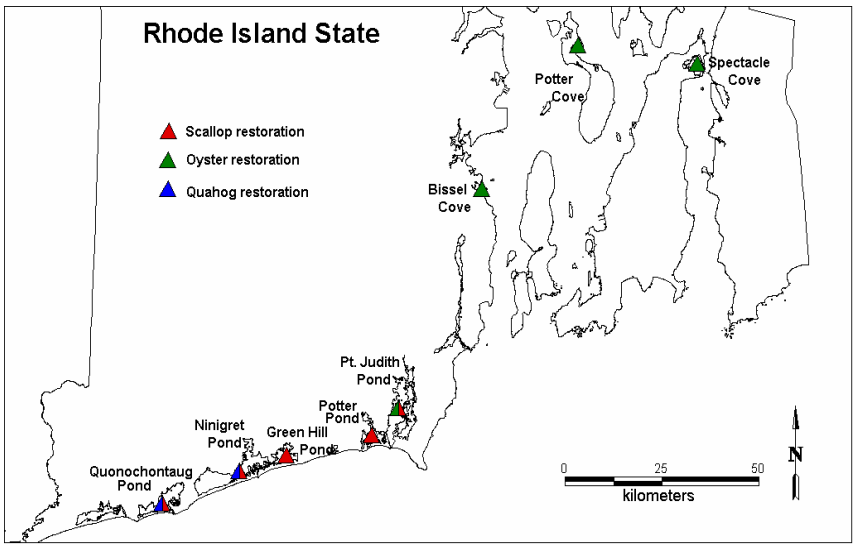
In January 1996, a 340-foot oil barge, the *North Cape*, ran aground off Moonstone Beach, Rhode Island after its tugboat caught fire during a severe winter storm. As a result, over 828,000 gallons of home heating oil spilled into local waters killing millions of shellfish, lobsters, fish, birds and other organisms.

USFWS

On January 19, 1996, the Tug Scandia and barge North Cape ran aground, spilling 828,000 gallons of home heating oil.

Highlights

•Bay scallops have returned to Ninigret Pond – Estimates indicate restored population may reach 1+ million by fall 2006
•More than 4 million oysters will be released to local waters by fall 2006
•More than 600,000 quahogs released to Quonochontaug and Ninigret Pond spawner sanctuaries



Map of Rhode Island state shellfish restoration locations

Restoring Shellfish

Using the $1.5 million from the settlement reached with the responsible party, RIDEM and NOAA established the Shellfish Restoration Program to address the loss of an estimated 150 million surf clams and more than 20 million other bivalves. The program began in 2002 and will be completed in 2007.

The Trustees approved projects targeting three species – restoring bay scallop (*Argopecten irradians*), eastern oyster (*Crassostrea virginica*) and quahog (*Mercenaria mercenaria*) populations in Rhode Island's South County coastal ponds and Narragansett Bay. The Program goals are to restore lost shellfish biomass and lost ecological services provided by the bivalves such as food sources for other biota, habitat structure, and water column filtering.

Bay Scallops

Restoration began in 2002 with the release of ~600,000 1-inch sized scallops into Pt. Judith Pond. Follow-up diver surveys indicated high scallop mortality from abundant predators (starfish and crabs). In 2003 approximately 2.1 million scallop seed were released to Ninigret, Quonochontaug, Green Hill and Potter Ponds. Follow-up diver surveys again revealed high scallop mortality, with the highest survivorship in Ninigret Pond. In 2004, a caged scallop spawner sanctuary was established in Ninigret Pond. This approach proved highly beneficial to scallop recruitment in the pond resulting in an estimated scallop population of 132,000 in Ninigret Pond in summer 2005, and an estimated 1 million broodstock in 2006. The caged spawner sanctuary technique will be applied in Quonochontaug Pond in 2006, using 20,000 hatchery-reared scallops.

NOAA

Scallop seeded in Pt. Judith Pond, 2002

NOAA

Mature scallop broodstock maintained in cages for predator protection

Oysters

Oyster restoration methods comprise four main steps: 1) remote larval set 2) oyster nursery grow-out 3) oyster seeding 4) subsequent monitoring of released seed.

NOAA

Remote oyster larval set takes place in tanks at the DEM Coastal Fisheries Lab

Oyster larvae settle on loose shell in tanks in early summer. The newly settled oyster are moved to oyster nurseries where they remain until they are ready to be seeded. Come fall, the oyster are seeded to select locations around Rhode Island.

NOAA

Newly settled oyster spat is reared in nurseries at the DEM Coastal Fisheries Lab

Approximately 500,000 oyster were released at six selected sites in 2003 and 2004. The 2005 oyster project was expanded to release 1.4 million oysters released at 5 sites. For 2006, 1.5 million oysters will be released to 3 or more of our existing restoration sites.

NOAA

Oysters one year after release

Quahog

Quahog enhancement started in 2002 with the purchase of small (1mm) quahog from a commercial hatchery. The 1mm quahog seed are raised in floating upwellers in Pt. Judith Pond, RI. When the animals are large enough, they are seeded into the spawner sancutaries

NOAA

Quahog are seeded in RI salt ponds

NOAA

The quahog upweller at the YMCA Camp Fuller is maintained. An upweller is a floating dock system used to rear shellfish by continuously passing water through the bins that hold the animals

In 2005, we compared pond bottom grow-out of the second year quahogs to seed grown in an upweller. The results revealed that the upweller produced much higher survival and slightly better growth, but demanded substantially higher investment of staff time.

To date, over 630,00 quahog have been seeded in Qunochontaug and Ninigret Ponds

Volunteer Participation and Public Outreach

The *North Cape* Shellfish Restoration Project would like to thank the tremendous effort provided by all of the volunteers in helping complete these labor intensive projects. Over the last four years, more than 280 volunteers have contributed 1500+ hours making shell bags, recording data, captaining boats, and seeding shellfish to the salt ponds. The Trustees would also like to thank the media outlets who have assisted us in disseminating information to the public. Several press events have been held with information published in the *Providence Journal*, *New York Times*, *Narragansett Times* and *Chariho Times*, *Narragansett Bay Journal* and the *Salt Ponds Coalition Newsletter.*

NOAA

Volunteers for the North Cape Shellfish Project carry bags of shell

Boze Hancock: Boze.Hancock@noaa.gov, 401-575-1720

Najih Lazar: Najih.Lazar@dem.ri.gov; 401-423-1926

James Turek: James.G.Turek@noaa.gov; 401-782-3338